

A GUIDE TO COLLECTING PASSIONFLOWERS¹

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ABSTRACT

Collections of passionflowers are often inadequate for taxonomic studies because of insufficient description of their complicated flower structures, i.e., corona, operculum, nectar ring, and limen. These structures are highly important to the taxonomy of *Passiflora*. Instructions are given here on how to make good, properly labelled collections of passionflowers.

Passifloraceae comprises four genera and about 400 species in the New World, most of which occur in South America. The four genera are: *Passiflora* (including *Tetrastylis*) with 390 species, *Dilkea* with five species, *Mitostemma* with three species, and *Ancistrothyrsus* with one or two species.

FLORAL MORPHOLOGY

Different terms have been used to describe the floral parts of Passifloraceae. The terminology of H. Harms (1893) and E. P. Killip (1938) is used. Variation in these characters is shown in Figure 1.

Corona. The corona usually consists of numerous elongate extensions. They are often differently colored than the sepals and petals and arranged in one to ten filament series or rows. Whether these extensions are filiform, liguliform, or spatulate; straight or falcate; terete or angled is important in distinguishing the species.

Operculum. The operculum is normally a membranous structure below the corona, which rarely has filiform extensions. It represents a "closed door" to non-pollinating visitors. It is most important as a distinguishing character at the subgeneric and specific level. Whether it is curved, straight, recurved, or plicate should be noted when collecting because such details are difficult to see in dried specimens. The nature of the operculum margins (entire, serrulate, lobulate, or filiform) should also be noted.

Nectar ring. The nectar ring is a low narrow ring below the operculum, at the bottom of the tube. Its presence or absence (it is often absent)

should be noted and, when present, its shape and color.

Limen. The limen may be similar to the nectar ring, or it may be a cup-shaped membrane more or less closely surrounding the base of the gynophore. Because the limen is not present in all species, its presence or absence should always be noted when collecting, as well as the nature of its margin (serrulate, lobulate, entire, denticulate).

HOW TO COLLECT

Information that should be gathered when collecting is listed in Table 1. Passifloras are herbaceous and woody vines, or sometimes scandent shrubs or treelets. Treelets and lianas show much variation in leaf size, the lower leaves often being several times larger than leaves of flowering and terminal branches. It is therefore important to collect both types of leaves.

Passifloras should always be examined carefully when collected. Do not wait a few hours because the flower will often collapse. Because of the importance of the inner floral characters, notes on these will help in identification. Large and long-tubed flowers (e.g., subg. *Granadilla* and *Tacsonia*) should be opened, or partly cut longitudinally, before pressing, so the internal structures are clearly visible. Small flowers (e.g., subg. *Plectostemma*) can be pressed without this sectioning, but should be pressed with the flowers open.

Whenever possible, flowering material should also be preserved in FAA, together with pieces of stem, leaves, etc. Large fruits should be cut

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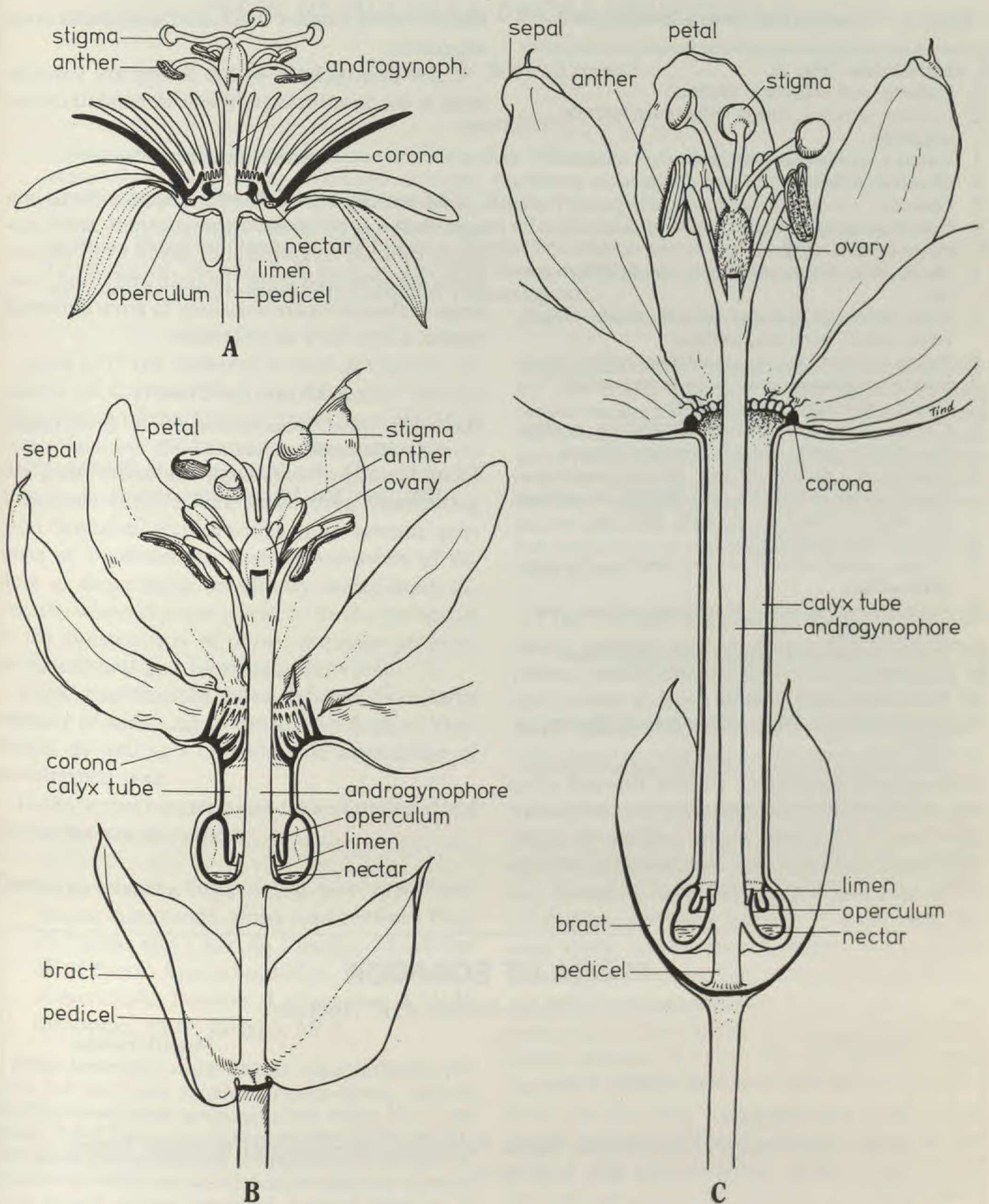


FIGURE 1. Variation in *Passiflora*.—A. subg. *Plectostemma*. *Passiflora capsularis* L.—B. subg. *Granadillastrum*. *P. manicata* (Juss.) Pers.—C. subg. *Tacsonia*. *P. mixta* L.

TABLE 1. Checklist for notes of passifloras.

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- A. General data. (Fig. 2)
1. Collector and collection number.
 2. Locality: province, closest village/city, latitude, longitude.
 3. Habitat: vegetation, substrate.
 4. Elevation in meters.
 5. Date.
 6. Common name and use.
- B. Specimen data. (Fig. 2)
1. Habit: herb, shrub, tree, liana; and height in meters.
 2. Stem: maximum diameter, smooth, striate, winged, terete, spiny, branching pattern.
 3. Bracts: present, absent, united/free, color.
 4. Sepals: aristilation, color outside and inside.
 5. Petals: color outside and inside.
 6. Corona: color, form (filiform, liguliform, spatulate, falcate, terete, angled), number of rows.
 7. Operculum: present/absent, plicate/nonplicate, curved, recurved, horizontal. Margin of operculum (entire, crenulate, serrulate, filiform).
 8. Nectar ring: present/absent.
 9. Limen: present/absent, margin (entire, crenulate, denticulate).
 10. Androgynophore: color of stamens, anthers, ovary, styles, stigma.
 11. Fruits: mature size, shape, color, seed color.
- C. Special data.
1. Transplant: seeds, cuttings.
 2. Preservation in FAA: stems, leaves, flowers, or fruits.
 3. Photographs: flowers, fruits, etc., picture number.
 4. Pollinators observed.
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into halves or smaller slices, and some seeds dried separately.

Color photographs of the flower are valuable tools in the description of the flower and its colors.

LIVING MATERIAL

The easiest way of transferring passifloras into cultivation is by seeds, although these are sometimes difficult to germinate. Seeds from mature fruits are removed from the pulp and dried. Cuttings of *Passiflora* are very easy to grow if planted within a few days of collection.

LITERATURE CITED

- HARMS, H. 1893. *Passifloraceae in H. G. A. Engler, Nat. Pflanzenfam.* 3(6a): 67-92.
- KILLIP, E. 1938. *Passifloraceae. Publ. Field Mus. Nat. Hist., Bot. Ser.* 19: 1-613.

FLORA OF ECUADOR

Collected by L. Holm-Nielsen & R. Andrade.

No. 18545

Passifloraceae

Passiflora manicata (Juss.) Pers.

Prov. COTOPAXI:

Road Angamarca-El Corazon just below Pinllopata. Remnants of montane forest. Alt. 1250 m. (79°05'W 1°09'S) 7. July 1979.

Liana 3 m, weakly branching. Bracts united, pale green. Sepals aristilate, bright red outside and inside, base white. Petals same colour as sepals, veins white. Filaments purple, apex white, 5 rows, no. 3 at base membranous, upper part split. Operculum nonplicate, recurved, margin minutely denticulate, white. Nectar ring absent. Limen membranous, erect, margin lobulate.

Photo, FAA, Transplant.

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FIGURE 2. Voucher label for a *Passiflora* collection.